WORK AUTHORIZATION NO. 1

PROJECT: Geotechnical Engineering for the Williamson County Reginal Animal Shelter – RFQ 1602-057-3

This Work Authorization is made pursuant to the terms and conditions of the Williamson County Contract for Engineering Services, being dated **December 01, 2016** and entered into by and between Williamson County, Texas, a political subdivision of the State of Texas, (the "County") and **Balcones Geotechnical, PLLC** (the "Engineer").

Part1. The Engineer will provide the following Engineering Services set forth in Attachment "B" of this Work Authorization.

Part 2. The maximum amount payable for services under this Work Authorization without modification is **$20,000.00.**

Part 3. Payment to the Engineer for the services established under this Work Authorization shall be made in accordance with the Contract.

Part 4. This Work Authorization shall become effective on the date of final acceptance and full execution of the parties hereto and shall terminate on **September 30, 2017**. The Engineering Services set forth in Attachment "B" of this Work Authorization shall be fully completed on or before said date unless extended by a Supplemental Work Authorization.

Part 5. This Work Authorization does not waive the parties' responsibilities and obligations provided under the Contract.

Part 6. County believes it has sufficient funds currently available and authorized for expenditure to finance the costs of this Work Authorization. Engineer understands and agrees that County's payment of amounts under this Work Authorization is contingent on the County receiving appropriations or other expenditure authority sufficient to allow the County, in the exercise of reasonable administrative discretion, to continue to make payments under this Contract. It is further understood and agreed by Engineer that County shall have the right to terminate this Contract at the end of any County fiscal year if the governing body of County does not appropriate sufficient funds as determined by County's budget for the fiscal year in question. County may effect such termination by giving written notice of termination to Engineer.

Part 7. This Work Authorization is hereby accepted and acknowledged below.

EXECUTED this ____ day of _____, 20___.

ENGINEER:

Balcones Geotechnical, PLLC

By: John Awooley
Signature

John A. Wooley
Printed Name

Principal
Title

COUNTY:

Williamson County, Texas

By: _____
Signature

_____
Printed Name

_____
Title

LIST OF ATTACHMENTS

Attachment A - Services to be Provided by County

Attachment B - Services to be Provided by Engineer

Attachment C - Work Schedule

Attachment D - Fee Schedule

Attachment A - Services to be Provided by County

Williamson County will provide a Project Manager and any requested data that is in the County's control.

Attachment B - Services to be Provided by Engineer

Submitted herewith is our proposal to perform a geotechnical investigation for the above referenced project. The project will include a new two-story approximately 20,000 sf building structure, and a kennel infill structure about 5,000 sf in size, with associated parking and driveway areas. The project site parcel is located off of SE Inner Loop within the Williamson County complex. Other site facilities include the Juvenile Justice Center, Emergency Services facility, Georgetown Annex and Children's Advocacy Center.

The geotechnical investigation for the project will include field, laboratory, and engineering phases. The following sections of this proposal include the scope of services in the three study phases, a cost estimate, and an estimated schedule.

Field Investigation

Based on available geologic information and previous work in the area, the project site is underlain by Del Rio clay and Georgetown limestone undivided. Surficial soils likely consist of highly plastic, potentially expansive clay. Groundwater and surface water drainage are also known to be present. Based on our discussions with the project team, Balcones Geotechnical proposes the following drilling scope:

- 3 borings to 40 feet within the proposed building footprint;
- 2 borings to 25 feet within the kennel infill; and
- 4 borings to 10 foot depth within the proposed parking and driveway areas.

Total drilling footage will be about **210 feet**. We will install groundwater piezometers if we encounter significant groundwater and it is deemed important to our investigation.

Laboratory Testing

Laboratory index tests (natural water contents, Atterberg limits, and partial gradation analyses) will be performed to classify soil strata and evaluate plasticity. Unconfined compression and triaxial compression tests will be conducted on selected undisturbed clay or rock specimens to evaluate the compressive and shear strength of the subsurface strata. Swell tests will also be performed on high plasticity soils to develop an understanding of soil swell potential. Soluble sulfate tests will be performed on soils from proposed parking areas.

Engineering Report

Engineering analyses of the results of the field and laboratory data will be made to develop recommendations for design of the building structure, pavements, and the detention pond. If warranted, we can compile a preliminary report with preliminary findings before finalizing our recommendations. Our final report of the investigation will include the following:

1. General subsurface conditions, including boring logs with descriptions of strata, summaries of laboratory test results, and water levels obtained at the time of drilling;
2. Boring location plan;
3. Recommended foundation design type (shallow foundations option on a select fill pad and/or deep foundations) and structural design parameters to be used by the structural engineer in design of foundations;
4. Recommendations for construction of slab on ground foundations including any special procedures that might be required to mitigate foundation heave;
5. Classification and sulfate test results for use by WILCO in performing pavement thickness designs; and
6. Recommendations for site preparation and site work necessary to properly construct the foundations including selection and compaction of select fill material(s).

One digital (PDF) copy of the report will be submitted unless otherwise requested.

Construction Phase Services

As requested, Balcones will provide limited construction phase services by making at least two site visits during installation of foundation elements. The purpose of these site visits will be to assure that the foundation bearing material(s) are in conformance with our final recommendations.

Attachment C - Work Schedule

Weather and site conditions permitting, field operations can start within about one or two weeks after formal authorization to proceed. Borings will take two or three days to complete. Under normal circumstances, laboratory testing and report preparation will take an additional four to six weeks to complete.

Attachment D - Fee Schedule

Cost Estimate

Based on the scope of work outlined above we propose to conduct this investigation and provide limited construction phase services for a total fee of **$20,000.00**, including a contingency. The breakdown of our fee is presented below:

Field Investigation - Staking and clearing borings, mob and drilling.....	$ 6,150.00
Laboratory Investigation – Classification, Swell and Strength Tests.....	$ 2,900.00
Technical Services - Drafting and Report Preparation.....	$ 1,950.00
Conference Calls and Coordination	$ 1,500.00
Engineering - Analyses, Recommendations and Report	$ 2,950.00
Total Report Cost Estimate.....	**$ 15,450.00**
Construction Phase Services	**$ 2,500.00**
TOTAL ESTIMATED COST	**$ 17,950.00**

The estimated fee is based on the following:

1. Boring locations will be accessible with truck-mounted drilling equipment;
2. An electronic copy of a site plan showing the location of the structure is provided for preparing our Boring Location Plan;
3. The boring locations will be located in the field by our field crew and we will clear utilities prior to drilling by calling in locations to One-Call; and
4. Right of entry and access will be provided by others.

The fee may be exceeded if site conditions are significantly different than anticipated or changes in work are required or requested. However, the maximum fee